Data sheet

HP 3500 and 3500 yl Switch Series

Product overview

The HP 3500 and 3500 yl Switch Series consists of advanced intelligent-edge switches, available in 24-port and 48-port fixed-port models. The foundation for these switches is a purpose-built, programmable HP ProVision ASIC that allows the most demanding networking features, such as quality of service (QoS) and security, to be implemented in a scalable, yet granular, fashion. With a variety of Gigabit Ethernet and 10/100 interfaces; integrated PoE+, PoE, and non-PoE options; and versatile 10GbE connectivity (CX4, X2, and SFP+) on Gigabit Ethernet switches, the 3500 and 3500 yl Switch Series offers excellent investment protection, flexibility, and scalability as well as ease of deployment, operation, and maintenance.

A summary of the highlights of the 3500 and 3500 yl Switch Series:

- Advanced access layer and small distribution
- Enterprise-class performance and security
- Intelligent edge feature set with L2 to L4 support
- Scalable 10/100/1000 PoE+ and 10/100 PoE
- Unified core-to-edge ProVision software

Features and benefits

Software-defined networking (SDN)

- OpenFlow
  Is a key technology that enables SDN by allowing separation of the data (packet forwarding) and control (routing decision) paths

Unified Wired and Wireless

- NEW HTTP redirect function
  Supports HP Intelligent Management Center (IMC) bring your own device (BYOD) solution

Quality of service (QoS)

- Advanced classifier-based QoS
  Classifies traffic using multiple match criteria based on L2, L3, and L4 information; and applies QoS policies such as setting the priority level and rate limiting to selected traffic on a per-port or per-VLAN basis
- L4 prioritization
  Enables prioritization based on TCP/UDP port numbers
- Traffic prioritization
  Allows real-time traffic classification into eight priority levels that are mapped to eight queues
- Bandwidth shaping
  - Port-based rate limiting
    Enabled per-port ingress/egress-enforced bandwidth increase
  - Classifier-based rate limiting
    Uses an access control list (ACL) to enforce increased bandwidth for ingress traffic on each port
  - Reduced bandwidth
    Provides per-port per-queue egress-based bandwidth reduction
- Class of service (CoS)
  Sets the IEEE 802.1p priority tag based on the IP address, IP type of service (ToS), L3 protocol, TCP/UDP port number, source port, and DiffServ

Management

- Remote intelligent mirroring
  Mirrors selected ingress/egress traffic based on an ACL, port, MAC address, or VLAN to a local or remote HP 8200 zl, 6600, 6200 yl, 5400 zl, or 3500 switch anywhere on the network
- Remote monitoring (RMON), Extended RMON (XRMON), and sFlow v5
  Provide advanced monitoring and reporting capabilities for statistics, history, alarms, and events
- IEEE 802.1AB link layer discovery protocol (LLDP)
  Advertises and receives management information from adjacent devices on a network, facilitating easy mapping by network management applications
- Unidirectional link detection (UDLD)
  Monitors the cable between two switches and shuts down the ports on both ends if the cable is broken, turning the bidirectional link into a unidirectional one; this helps prevent network problems such as loops
- Management simplicity
  Common software features and CLI implementation across all ProVision-based switches (including the zl and yl switches)
- Command authorization
  Leverages the RADIUS to link a custom list of CLI commands to an individual network administrator's login; an audit trail documents the activity

- Friendly port names
  Allows assignment of descriptive names to ports
- Dual flash images
  Provides independent primary and secondary operating system files for backup while upgrading
- Multiple configuration files
  Are easily stored with a flash image
- Comware CLI
  - Comware-compatible CLI
    Bridges the experience of HP Comware CLI users who use the ProVision software CLI
  - Display and fundamental Comware CLI commands
    Are embedded in the switch CLI as native commands; display output is formatted as on Comware-based switches and fundamental commands provide a Comware-familiar initial switch setup
  - Configuration Comware CLI commands
    Elicit CLI help to formulate the correct ProVision software CLI command

Connectivity

- IEEE 802.3af PoE
  Provides up to 15.4 W per port to IEEE 802.3af-compliant PoE-powered devices such as IP phones, wireless access points, and security cameras
- IEEE 802.3at PoE+
  Provides up to 30 W per port to IEEE 802.3at-complaint PoE/PoE+-powered devices such as video IP phones, IEEE 802.11n wireless access points, and advanced pan/zoom/tilt security cameras
- Pre-standard PoE support
  Detects and provides power to pre-standard PoE devices (refer to the list of supported devices in the product FAQs, which can be accessed at hp.com/networking)
- Jumbo frames
  Allow high-performance remote backup and disaster-recovery services on GbE and 10GbE ports
- Auto-MDIX
  Provides automatic adjustments for straight-through or crossover cables on all 10/100 and 10/100/1000 ports
- IPv6
  - IPv6 host
    Enables switches to be managed in an IPv6 network
  - Dual stack (IPv4 and IPv6)
    Provides the transition mechanism from IPv4 to IPv6; and supports connectivity for both protocols
  - MLD snooping
    Forwards IPv6 multicast traffic to the appropriate interface
  - IPv6 ACL/QoS
    Supports ACL and QoS for IPv6 network traffic
  - IPv6 routing
    Supports static and open standard path first (OSPF) v3 routing protocols
  - 6-in-4 tunneling
    Supports encapsulation of IPv6 traffic in IPv4 packets
  - Security
    Provides RA guard, DHCPv6 protection, dynamic IPv6 lockdown

Performance

- High-speed/capacity architecture
  Provides intra- and inter-module switching with up to 111.5 million pps throughput on the purpose-built ProVision ASICs, using a crossbar switching fabric with up to 153.6 Gb/s
- Selectable queue configurations
  Enables increased performance by selecting the number of queues and associated memory buffering that best meet the requirements of the network applications

Resiliency and high availability

- Virtual router redundancy protocol (VRRP)
  Allows groups of two routers to dynamically back each other up to create highly available router environments
- Multiple spanning tree protocol (STP) and IEEE 802.1s
  Offers high link availability in multiple VLAN environments by allowing multiple spanning trees; encompasses IEEE 802.1D STP and IEEE 802.1w Rapid STP
- IEEE 802.3ad link-aggregation-control protocol (LACP) and HP port trunking
  Support up to 144 trunks, each with up to eight links (ports) per trunk
- Distributed trunking
  Enables loop-free and redundant network topology without using STP; and allows a server or switch to connect to two switches using one logical trunk for redundancy and load sharing
- Uplink failure detection
  Provides active-standby network path redundancy for servers that are configured for active-standby NIC teaming
- SmartLink
  Provides easy-to-configure link redundancy of active and standby links

L2 switching

- IEEE 802.1ad Q-in-Q
  Increases the scalability of an Ethernet network by providing a hierarchical structure; and connects multiple LANs on a high-speed campus or metro network
- HP switch meshing
  Enables dynamic load balancing across multiple active redundant links to increase the aggregate bandwidth availability
- VLAN support and tagging
  Supports the IEEE 802.1Q standard and 2,048 VLANs simultaneously
- IEEE 802.1v protocol VLANs
  Isolate select non-IPv4 protocols automatically into their own VLANs
- GARP VLAN registration protocol
  Allows automatic learning and dynamic assignment of VLANs
- Rapid per-VLAN spanning tree (RPVST+)
  Allows each VLAN to build a separate spanning tree to improve link bandwidth usage; is compatible with PVST+

L3 services

- User datagram protocol (UDP) helper function
  Allows UDP broadcasts to be directed across router interfaces to specific IP unicast or subnet broadcast addresses; and helps prevent server spoofing for UDP services such as DHCP
- Loopback interface address
  Defines an address in the routing information protocol (RIP) and OSPF, improving the diagnostic capability
- Route maps
  Provide more control during route redistribution; and allow filtering and altering of route metrics
- NEW DHCP server
  Centralizes and reduces the cost of IPv4 address management

L3 routing

- Static IP routing
  Provides manually configured routing for both IPv4 and IPv6 networks
- RIP
  Includes RIPv1 and RIPv2 routing
- OSPF
  Provides OSPFv2 for IPv4 routing and OSPFv3 for IPv6 routing
- IPv4 border gateway routing protocol
  Is scalable, robust, and flexible

Security

- ACLs
  Provide filtering based on the IP field, source/destination IP address/subnet and source/destination TCP/UDP port number on a per-VLAN or per-port basis
- Multiple user authentication methods
  - IEEE 802.1X users per port
    Enables authentication of multiple IEEE 802.1X users per port
  - Web-based authentication
    Authenticates from the Web browser for clients that do not support the IEEE 802.1X supplicant
  - MAC-based authentication
    Provides client authentication with a RADIUS server, based on the client's MAC authentication
  - Concurrent IEEE 802.1X, Web, and MAC authentication schemes per port
    Allows a switch port to accept up to 32 sessions of IEEE 802.1X, Web, and MAC authentications
- Virus throttling
  Detects traffic patterns typical of worm-type viruses; and either throttles or helps entirely prevent the virus from spreading across the routed VLANs or bridged interfaces without requiring external appliances
- DHCP protection
  Blocks DHCP packets from unauthorized DHCP servers, mitigating denial-of-service attacks
- Secure management access
  Delivers secure encryption of all access methods (CLI, GUI, and MIB) through SSHv2, SSL, and/or SNMPv3

- Switch CPU protection
  Provides automatic protection against malicious network traffic trying to shut down the switch
- ICMP throttling
  Defeats ICMP denial-of-service attacks by enabling any switch port to automatically throttle ICMP traffic
- Identity-driven ACL
  Enables implementation of a highly granular and flexible access security policy and VLAN assignment specific to each authenticated network user
- STP bridge protocol data units (BPDUs) port protection
  Blocks BPDUs on ports that do not require BPDUs, mitigating forged BPDU attacks
- Dynamic IP lockdown
  Works with DHCP protection to block traffic from unauthorized hosts, mitigating IP source address spoofing
- Dynamic ARP protection
  Blocks ARP broadcasts from unauthorized hosts, helping prevent eavesdropping or theft of network data
- STP root guard
  Protects the root bridge from malicious attacks or configuration mistakes
- Detection of malicious attacks
  Monitors 10 types of network traffic; and sends a warning when an anomaly that can be potentially caused by malicious attacks is detected
- Port security
  Allows access only to specified MAC addresses, which can be learned or specified by the administrator
- MAC address lockout
  Helps prevent certain configured MAC addresses from connecting to the network
- Source-port filtering
  Allows only specified ports to communicate with each other
- RADIUS/TACACS+
  Eases switch management security administration by using a password authentication server
- Secure shell (SSH)
  Encrypts all transmitted data for secure remote CLI access over IP networks
- Secure sockets layer (SSL)
  Encrypts all HTTP traffic, allowing secure access to the browser-based management GUI in the switch
- Secure FTP
  Allows secure file transfer to and from the switch; and protects against unwanted file downloads or unauthorized copying of a switch configuration file
- Management interface wizard
  Helps secure management interfaces such as SNMP, telnet, SSH, SSL, Web, and USB at the desired level
- Switch management logon security
  Helps secure switch CLI logon by optionally requiring either RADIUS or TACACS+ authentication
- Security banner
  Displays a customized security policy when users log in to the switch

Convergence

- IP multicast routing
  Includes PIM sparse and dense modes to route IP multicast traffic
- IP multicast snooping (data-driven IGMP)
  Helps prevent flooding of IP multicast traffic
- LLDP-media endpoint discovery (MED)
  Defines a standard extension of LLDP that stores values for parameters such as QoS and VLAN to automatically configure network devices such as IP phones
- PoE allocations
  Supports multiple methods—automatic, IEEE 802.3af class, LLDP-MED, or user specified—to allocate PoE power for more efficient energy use
- Auto VLAN configuration for voice
  - RADIUS VLAN
    Uses a standard RADIUS attribute and LLDP-MED to automatically configure a VLAN for IP phones
  - CDPv2
    Uses CDPv2 to configure legacy IP phones
- Local MAC authentication
  Assigns attributes such as VLAN and QoS, using a locally configured profile that can be a list of MAC prefixes

Warranty and support

- Limited Lifetime warranty 2.0
  Advance hardware replacement with next-business-day delivery (available in most countries). See hp.com/networking/warrantysummary for duration details
- Electronic and telephone support (for Limited Lifetime Warranty 2.0)
  Limited 24x7 telephone support is available from HP for the first 3 years; limited electronic and business hours telephone support is available from HP for the entire warranty period; to reach our support centers, refer to hp.com/networking/contact-support; for details on the duration of support provided with your product purchase, refer to hp.com/networking/warrantysummary
- Software releases
  To find software for your product, visit hp.com/networking/support; for details on the software releases available with your product purchase, visit hp.com/networking/warrantysummary

HP 3500 and 3500 yl Switch Series

Specifications

	HP 3500-48G-PoE+ yl Switch (J9311A)	**HP 3500-24G-PoE+ yl Switch (J9310A)**	**HP 3500-48G-PoE yl Switch (J8693A)**
Ports	1 open module slot 44 autosensing 10/100/1000 ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T); Media Type: Auto-MDIX; Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only 1 RJ-45 serial console port 4 dual-personality ports; each port can be used as either an RJ-45 10/100/1000 port (IEEE 802.3 Type 10BASE-T; IEEE 802.3u Type 100BASE-TX; IEEE 802.3ab 1000BASE-T Gigabit Ethernet) with PoE or an open mini-GBIC slot (for use with mini-GBIC transceivers) Supports a maximum of 4 10GbE ports, with optional module	1 open module slot 20 autosensing 10/100/1000 ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T); Media Type: Auto-MDIX; Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only 1 RJ-45 serial console port 4 dual-personality ports; each port can be used as either an RJ-45 10/100/1000 port (IEEE 802.3 Type 10BASE-T; IEEE 802.3u Type 100BASE-TX; IEEE 802.3ab 1000BASE-T Gigabit Ethernet) with PoE or an open mini-GBIC slot (for use with mini-GBIC transceivers) Supports a maximum of 4 10GbE ports, with optional module	1 open module slot 44 autosensing 10/100/1000 ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T); Media Type: Auto-MDIX; Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only 4 dual-personality ports; each port can be used as either an RJ-45 10/100/1000 port (IEEE 802.3 Type 10BASE-T; IEEE 802.3u Type 100BASE-TX; IEEE 802.3ab 1000BASE-T Gigabit Ethernet) with PoE or an open mini-GBIC slot (for use with mini-GBIC transceivers) Supports a maximum of 4 10GbE ports, with optional module
Physical characteristics	17.44(w) x 16.93(d) x 1.73(h) in. (44.3 x 43.0 x 4.4 cm) (1U height)	17.44(w) x 15.43(d) x 1.73(h) in. (44.3 x 39.2 x 4.4 cm) (1U height)	17.44(w) x 16.93(d) x 1.73(h) in. (44.3 x 43.0 x 4.4 cm) (1U height)
Weight	15.54 lb (7.05 kg)	13.86 lb (6.29 kg)	16.09 lb (7.3 kg)
Memory and processor			
10G module	ARM9 @ 200 MHz; packet buffer size: 36 Mb QDR SDRAM	ARM9 @ 200 MHz; packet buffer size: 36 Mb QDR SDRAM	ARM9 @ 200 MHz; packet buffer size: 36 Mb QDR SDRAM
Management module	Stackable memory and processor: Freescale PowerPC 8540 @ 666 MHz, 4 MB flash, 128 MB compact flash, 256 MB DDR SDRAM	Stackable memory and processor: Freescale PowerPC 8540 @ 666 MHz, 4 MB flash, 128 MB compact flash, 256 MB DDR SDRAM	Stackable memory and processor: Freescale PowerPC 8540 @ 666 MHz, 4 MB flash, 128 MB compact flash, 256 MB DDR SDRAM
Mounting	Mounts in an EIA-standard 19 in. Telco rack or equipment cabinet (hardware included); horizontal surface mounting only	Mounts in an EIA-standard 19 in. Telco rack or equipment cabinet (hardware included); horizontal surface mounting only	Mounts in an EIA-standard 19 in. Telco rack or equipment cabinet (hardware included); horizontal surface mounting only
Performance			
1000 Mb Latency	< 3.4 µs (FIFO 64-byte packets)	< 3.4 µs (FIFO 64-byte packets)	< 3.4 µs (FIFO 64-byte packets)
10 Gb/s Latency	< 2.1 µs (FIFO 64-byte packets)	< 2.1 µs (FIFO 64-byte packets)	< 2.1 µs (FIFO 64-byte packets)
Throughput	Up to 111.5 million pps	Up to 75.7 million pps	Up to 111.5 million pps
Routing/Switching capacity	149.8 Gb/s	101.8 Gb/s	149.8 Gb/s
Switch fabric speed	153.6 Gb/s	105.6 Gb/s	153.6 Gb/s
Routing table size	10000 entries (IPv4)	10000 entries (IPv4)	10000 entries (IPv4)
MAC address table size	64000 entries	64000 entries	64000 entries
Environment			
Operating temperature	32°F to 131°F (0°C to 55°C); 32°F to 104°F (40°C) when used with any SFP+ 10GbE	32°F to 131°F (0°C to 55°C); 32°F to 104°F (40°C) when used with any X2 10GbE	32°F to 131°F (0°C to 55°C); 32°F to 104°F (40°C) when used with any X2 10GbE
Operating relative humidity	15% to 95% @ 104°F (40°C), noncondensing	15% to 95% @ 104°F (40°C), noncondensing	15% to 95% @ 104°F (40°C), noncondensing
Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)	-40°F to 158°F (-40°C to 70°C)	-40°F to 158°F (-40°C to 70°C)
Nonoperating/Storage relative humidity	15% to 95% @ 149°F (65°C), noncondensing	15% to 90% @ 149°F (65°C), noncondensing	15% to 95% @ 149°F (65°C), noncondensing
Altitude	Up to 15,000 ft. (4.6 km)	Up to 15,000 ft. (4.6 km)	Up to 15,000 ft. (4.6 km)
Acoustic	Power: 58.0 dB, Pressure: 42.0 dB ISO 7779, ISO 9296	Power: 57.0 dB, Pressure: 40.5 dB ISO 7779, ISO 9296	Power: 55.6 dB, Pressure: 45.3 dB ISO 7779, ISO 9296

HP 3500 and 3500 yl Switch Series (continued)

Specifications (continued)

	HP 3500-48G-PoE+ yl Switch (J9311A)	HP 3500-24G-PoE+ yl Switch (J9310A)	HP 3500-48G-PoE yl Switch (J8693A)
Electrical characteristics			
Description			Achieved Miercom Certified Green Award
	The switch automatically adjusts to any voltage between 100–127 and 200–240 V with either 50 or 60 Hz.	The switch automatically adjusts to any voltage between 100–127 and 200–240 V with either 50 or 60 Hz.	The switch automatically adjusts to any voltage between 100–127 and 200–240 V with either 50 or 60 Hz.
Maximum heat dissipation	1144 BTU/hr (1206.9 kJ/hr)	865 BTU/hr (912.9 kJ/hr)	1144 BTU/hr (1206.9 kJ/hr) Voltage
Voltage	100-127/200-240 VAC	100-127/200-240 VAC	100-127/200-240 VAC
Current	7.3/3.3	6.6/3.0	10.0/5.0 A
Idle power	142 W	142 W	142 W
Maximum power rating	638 W	616 W	705 W
PoE power	398 W	398 W	398 W
Frequency	50/60 H	50/60 H	50/60 H
Notes	Idle power is the actual power consumption of the device with no ports connected. Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated. The amount of PoE power delivered is dependent on the number and type of power supplies connected. The switches offer optional external power supplies (EPS) for maximum PoE power.	Idle power is the actual power consumption of the device with no ports connected. Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated. The amount of PoE power delivered is dependent on the number and type of power supplies connected. The switches offer optional external power supplies (EPS) for maximum PoE power.	Idle power is the actual power consumption of the device with no ports connected. Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated. The amount of PoE power delivered is dependent on the number and type of power supplies connected. The switches offer optional external power supplies (EPS) for maximum PoE power.
Safety	CSA 22.2 No. 60950; UL 60950; IEC 60950; EN 60950	CSA 22.2 No. 60950; UL 60950; IEC 60950; EN 60950	CSA 22.2 No. 60950; UL 60950; IEC 60950; EN 60950
Emissions	FCC Class A; VCCI Class A; EN 55022/CISPR 22 Class A	FCC Class A; VCCI Class A; EN 55022/CISPR 22 Class A	FCC Class A; VCCI Class A; EN 55022/CISPR 22 Class A
Immunity			
EN	EN 55024, CISPR 24	EN 55024, CISPR 24	EN 55024, CISPR 24
ESD	IEC 61000-4-2; 4 kV CD, 8 kV AD	IEC 61000-4-2; 4 kV CD, 8 kV AD	IEC 61000-4-2; 4 kV CD, 8 kV AD
Radiated	IEC 61000-4-3; 3 V/m	IEC 61000-4-3; 3 V/m	IEC 61000-4-3; 3 V/m
EFT/Burst	IEC 61000-4-4; 1.0 kV (power line), 0.5 kV (signal line)	IEC 61000-4-4; 1.0 kV (power line), 0.5 kV (signal line)	IEC 61000-4-4; 1.0 kV (power line), 0.5 kV (signal line)
Surge	IEC 61000-4-5; 1 kV/2 kV AC	IEC 61000-4-5; 1 kV/2 kV AC	IEC 61000-4-5; 1 kV/2 kV AC
Conducted	IEC 61000-4-6; 3 V	IEC 61000-4-6; 3 V	IEC 61000-4-6; 3 V
Power frequency magnetic field	IEC 61000-4-8; 1 A/m, 50 or 60 Hz	IEC 61000-4-8; 1 A/m, 50 or 60 Hz	IEC 61000-4-8; 1 A/m, 50 or 60 Hz
Voltage dips and interruptions	IEC 61000-4-11; >95% reduction, 0.5 period; 30% reduction, 25 periods	IEC 61000-4-11; >95% reduction, 0.5 period; 30% reduction, 25 periods	IEC 61000-4-11; >95% reduction, 0.5 period; 30% reduction, 25 periods
Harmonics	EN 61000-3-2, IEC 61000-3-2	EN 61000-3-2, IEC 61000-3-2	EN 61000-3-2, IEC 61000-3-2
Flicker	EN 61000-3-3, IEC 61000-3-3	EN 61000-3-3, IEC 61000-3-3	EN 61000-3-3, IEC 61000-3-3
Management	IMC—Intelligent Management Center; command-line interface; Web browser; configuration menu; out-of-band management (serial RS-232C)	IMC—Intelligent Management Center; command-line interface; Web browser; configuration menu; out-of-band management (serial RS-232C)	IMC—Intelligent Management Center; command-line interface; Web browser; configuration menu; out-of-band management (serial RS-232C)
Notes	J8177B Gigabit 1000BASE-T mini-GBIC is not supported on the 3500 switch series.	J8177B Gigabit 1000BASE-T mini-GBIC is not supported on the 3500 switch series.	J8177B Gigabit 1000BASE-T mini-GBIC is not supported on the 3500 switch series.
	Supported 1G SFP transceivers are revision "B" or later (product number ends with the letter "B" or later, for example, J9142B, J8177C).	Supported 1G SFP transceivers are revision "B" or later (product number ends with the letter "B" or later, for example, J9142B, J8177C).	Supported 1G SFP transceivers are revision "B" or later (product number ends with the letter "B" or later, for example, J9142B, J8177C).
Services	Refer to the HP website at hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.	Refer to the HP website at hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.	Refer to the HP website at hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.

HP 3500 and 3500 yl Switch Series (continued)

Specifications (continued)

	HP 3500-24G-PoE yl Switch (J8692A)	**HP 3500-48-PoE Switch (J9473A)**	**HP 3500-24-PoE Switch (J9471A)**
Ports	1 open module slot 20 autosensing 10/100/1000 ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T); Media Type: Auto-MDIX; Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only 4 dual-personality ports; each port can be used as either an RJ-45 10/100/1000 port (IEEE 802.3 Type 10BASE-T; IEEE 802.3u Type 100BASE-TX; IEEE 802.3ab 1000BASE-T Gigabit Ethernet) with PoE or an open mini-GBIC slot (for use with mini-GBIC transceivers) Supports a maximum of 4 10GbE ports, with optional module	44 RJ-45 autosensing 10/100 ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX); Media Type: Auto-MDIX; Duplex: half or full 4 dual-personality ports; each port can be used as either an RJ-45 10/100/1000 port (IEEE 802.3 Type 10BASE-T; IEEE 802.3u Type 100BASE-TX; IEEE 802.3ab 1000BASE-T Gigabit Ethernet) with PoE or an open mini-GBIC slot (for use with mini-GBIC transceivers) 1 RS-232C DB-9 console port	20 RJ-45 autosensing 10/100 ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX); Media Type: Auto-MDIX; Duplex: half or full 4 dual-personality ports; each port can be used as either an RJ-45 10/100/1000 port (IEEE 802.3 Type 10BASE-T; IEEE 802.3u Type 100BASE-TX; IEEE 802.3ab 1000BASE-T Gigabit Ethernet) or an open mini-GBIC slot (for use with mini-GBIC transceivers) 1 RS-232C DB-9 console port
Physical characteristics	17.44(w) x 15.43(d) x 1.73(h) in. (44.3 x 39.2 x 4.4 cm) (1U height)	17.44(w) x 16.93(d) x 1.73(h) in. (44.3 x 43.0 x 4.4 cm) (1U height)	17.44(w) x 15.43(d) x 1.73(h) in. (44.3 x 39.2 x 4.4 cm) (1U height)
Weight	14.11 lb (6.4 kg)	14.99 lb (6.8 kg)	13.23 lb (6 kg)
Memory and processor			
10G module	ARM9 @ 200 MHz; packet buffer size: 36 Mb QDR SDRAM		
Management module	Stackable memory and processor: Freescale PowerPC 8540 @ 666 MHz, 4 MB flash, 128 MB compact flash, 256 MB DDR SDRAM	Stackable memory and processor: Freescale PowerPC 8540 @ 666 MHz, 4 MB flash, 128 MB compact flash, 256 MB DDR SDRAM	Stackable memory and processor: Freescale PowerPC 8540 @ 666 MHz, 4 MB flash, 128 MB compact flash, 256 MB DDR SDRAM
Mounting	Mounts in an EIA-standard 19 in. Telco rack or equipment cabinet (hardware included); horizontal surface mounting only	Mounts in an EIA-standard 19 in. Telco rack or equipment cabinet (hardware included); horizontal surface mounting only	Mounts in an EIA-standard 19 in. Telco rack or equipment cabinet (hardware included); horizontal surface mounting only
Performance			
100 Mb Latency		< 3.4 µs (LIFO 64-byte packets)	< 3.4 µs (LIFO 64-byte packets)
1000 Mb Latency	< 3.4 µs (FIFO 64-byte packets)	< 2.9 µs (LIFO 64-byte packets)	< 2.9 µs (LIFO 64-byte packets)
10 Gb/s Latency	< 2.1 µs (FIFO 64-byte packets)		
Throughput	Up to 75.7 million pps	Up to 12.5 million pps (64-byte packets)	Up to 8.9 million pps (64-byte packets)
Routing/Switching capacity	101.8 Gb/s	16.8 Gb/s	12 Gb/s
Switch fabric speed	105.6 Gb/s		
Routing table size	10000 entries (IPv4)	10000 entries (IPv4)	10000 entries (IPv4)
MAC address table size	64000 entries	64000 entries	64000 entries
Environment			
Operating temperature	32°F to 131°F (0°C to 55°C); 32°F to 104°F (40°C) when used with any X2 10GbE	32°F to 131°F (0°C to 55°C)	32°F to 131°F (0°C to 55°C)
Operating relative humidity	15% to 95% @ 104°F (40°C), noncondensing	15% to 95% @ 104°F (40°C), noncondensing	15% to 95% @ 104°F (40°C), noncondensing
Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)	-40°F to 158°F (-40°C to 70°C)	-40°F to 158°F (-40°C to 70°C)
Nonoperating/Storage relative humidity	15% to 90% @ 149°F (65°C), noncondensing	15% to 95% @ 149°F (65°C), noncondensing	15% to 90% @ 149°F (65°C), noncondensing
Altitude	Up to 15,000 ft. (4.6 km)	Up to 15,000 ft. (4.6 km)	Up to 15,000 ft. (4.6 km)
Acoustic	Power: 55.1 dB, Pressure: 44.8 dB ISO 7779, ISO 9296	Power: 55.6 dB, Pressure: 45.3 dB ISO 7779, ISO 9296	Power: 55.1 dB, Pressure: 44.8 dB ISO 7779, ISO 9296

HP 3500 and 3500 yl Switch Series (continued)

Specifications (continued)

	HP 3500-24G-PoE yl Switch (J8692A)	HP 3500-48-PoE Switch (J9473A)	HP 3500-24-PoE Switch (J9471A)
Electrical characteristics			
Description	The switch automatically adjusts to any voltage between 100–127 and 200–240 V with either 50 or 60 Hz.	The switch automatically adjusts to any voltage between 100–127 and 200–240 V with either 50 or 60 Hz.	The switch automatically adjusts to any voltage between 100–127 and 200–240 V with either 50 or 60 Hz.
Maximum heat dissipation	865 BTU/hr (912.9 kJ/hr)	611 BTU/hr (644.6 kJ/hr)	435 BTU/hr (458.92 kJ/hr)
Voltage	100-127/200-240 VAC	100-127/200-240 VAC	100-127/200-240 VAC
Current	10.0/5.0 A	7.3/3.3 A	6.6/3.0 A
Idle power	98 W	133.2 W	91 W
Maximum power rating	623 W	548.8 W	497 W
PoE power	398 W	398 W	398 W
Frequency	50/60 Hz	50/60 Hz	50/60 Hz
Notes	Idle power is the actual power consumption of the device with no ports connected. Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated. The amount of PoE power delivered is dependent on the number and type of power supplies connected. The switches offer optional external power supplies (EPS) for maximum PoE power.	Idle power is the actual power consumption of the device with no ports connected. Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated. The amount of PoE power delivered is dependent on the number and type of power supplies connected. The switches offer optional external power supplies (EPS) for maximum PoE power.	Idle power is the actual power consumption of the device with no ports connected. Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated. The amount of PoE power delivered is dependent on the number and type of power supplies connected. The switches offer optional external power supplies (EPS) for maximum PoE power.
Safety	CSA 22.2 No. 60950; UL 60950; IEC 60950; EN 60950	EN 60950/IEC 60950; CAN/CSA 22.2 No. 60950; UL 60950; IEC 60950	EN 60950/IEC 60950; CAN/CSA 22.2 No. 60950; EN 60825; UL 60950
Emissions	FCC Class A; VCCI Class A; EN 55022/CISPR 22 Class A	FCC Class A; VCCI Class A; EN 55022/CISPR 22 Class A	FCC Class A; VCCI Class A; EN 55022/CISPR 22 Class A
Immunity			
EN	EN 55024, CISPR 24	EN 55024, CISPR 24	EN 55024, CISPR 24
ESD	IEC 61000-4-2; 4 kV CD, 8 kV AD	IEC 61000-4-2; 4 kV CD, 8 kV AD	IEC 61000-4-2; 4 kV CD, 8 kV AD
Radiated	IEC 61000-4-3; 3 V/m	IEC 61000-4-3; 3 V/m	IEC 61000-4-3; 3 V/m
EFT/Burst	IEC 61000-4-4; 1.0 kV (power line), 0.5 kV (signal line)	IEC 61000-4-4; 1.0 kV (power line), 0.5 kV (signal line)	IEC 61000-4-4; 1.0 kV (power line), 0.5 kV (signal line)
Surge	IEC 61000-4-5; 1 kV/2 kV AC	IEC 61000-4-5; 1 kV/2 kV AC	IEC 61000-4-5; 1 kV/2 kV AC
Conducted	IEC 61000-4-6; 3 V	IEC 61000-4-6; 3 V	IEC 61000-4-6; 3 V
Power frequency magnetic field	IEC 61000-4-8; 1 A/m, 50 or 60 Hz	IEC 61000-4-8; 1 A/m, 50 or 60 Hz	IEC 61000-4-8; 1 A/m, 50 or 60 Hz
Voltage dips and interruptions	IEC 61000-4-11; >95% reduction, 0.5 period; 30% reduction, 25 periods	IEC 61000-4-11; >95% reduction, 0.5 period; 30% reduction, 25 periods	IEC 61000-4-11; >95% reduction, 0.5 period; 30% reduction, 25 periods
Harmonics	EN 61000-3-2, IEC 61000-3-2	EN 61000-3-2, IEC 61000-3-2	EN 61000-3-2, IEC 61000-3-2
Flicker	EN 61000-3-3, IEC 61000-3-3	EN 61000-3-3, IEC 61000-3-3	EN 61000-3-3, IEC 61000-3-3
Management	IMC—Intelligent Management Center; command-line interface; Web browser; configuration menu; out-of-band management (serial RS-232C)	IMC—Intelligent Management Center; command-line interface; Web browser; configuration menu; out-of-band management (serial RS-232C)	IMC—Intelligent Management Center; command-line interface; Web browser; configuration menu; out-of-band management (serial RS-232C)
Notes	J8177B Gigabit 1000BASE-T mini-GBIC is not supported on the 3500 switch series. Supported 1G SFP transceivers are revision "B" or later (product number ends with the letter "B" or later, for example, J9142B, J8177C).	J8177B Gigabit 1000BASE-T mini-GBIC is not supported on the 3500 switch series. Supported 1G SFP transceivers are revision "B" or later (product number ends with the letter "B" or later, for example, J9142B, J8177C).	J8177B Gigabit 1000BASE-T mini-GBIC is not supported on the 3500 switch series. Supported 1G SFP transceivers are revision "B" or later (product number ends with the letter "B" or later, for example, J9142B, J8177C).
Services	Refer to the HP website at hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.	Refer to the HP website at hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.	Refer to the HP website at hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.

HP 3500 and 3500 yl Switch Series (continued)

Specifications (continued)

HP 3500-48 Switch (J9472A)

HP 3500-24 Switch (J9470A)

	HP 3500-48 Switch (J9472A)	HP 3500-24 Switch (J9470A)
Ports	44 RJ-45 autosensing 10/100 ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX); Media Type: Auto-MDIX; Duplex: half or full 4 dual-personality ports; each port can be used as either an RJ-45 10/100/1000 port (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab 1000BASE-T Gigabit Ethernet) with PoE, or an open mini-GBIC slot (for use with mini-GBIC transceivers) 1 RS-232C DB-9 console port	20 RJ-45 autosensing 10/100 ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX); Media Type: Auto-MDIX; Duplex: half or full 4 dual-personality ports; each port can be used as either an RJ-45 10/100/1000 port (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab 1000BASE-T Gigabit Ethernet), or an open mini-GBIC slot (for use with mini-GBIC transceivers) 1 RS-232C DB-9 console port
Physical characteristics	17.44(w) x 16.93(d) x 1.73(h) in. (44.3 x 43.0 x 4.4 cm) (1U height)	17.44(w) x 15.43(d) x 1.73(h) in. (44.3 x 39.2 x 4.4 cm) (1U height)
Weight	13.45 lb (6.1 kg)	11.9 lb (5.4 kg)
Memory and processor		
Management module	Stackable memory and processor: Freescale PowerPC 8540 @ 666 MHz, 4 MB flash, 128 MB compact flash, 256 MB DDR SDRAM	Stackable memory and processor: Freescale PowerPC 8540 @ 666 MHz, 4 MB flash, 128 MB compact flash, 256 MB DDR SDRAM
Mounting	Mounts in an EIA-standard 19 in. Telco rack or equipment cabinet (hardware included); horizontal surface mounting only	Mounts in an EIA-standard 19 in. Telco rack or equipment cabinet (hardware included); horizontal surface mounting only
Performance		
100 Mb Latency	< 3.4 µs (LIFO 64-byte packets)	< 3.4 µs (LIFO 64-byte packets)
1000 Mb Latency	< 2.9 µs (LIFO 64-byte packets)	< 2.9 µs (LIFO 64-byte packets)
Throughput	Up to 12.5 million pps (64-byte packets)	Up to 8.9 million pps (64-byte packets)
Routing/Switching capacity	16.8 Gb/s	12 Gb/s
Routing table size	10000 entries (IPv4)	10000 entries (IPv4)
MAC address table size	64000 entries	64000 entries
Environment		
Operating temperature	32°F to 131°F (0°C to 55°C)	32°F to 131°F (0°C to 55°C)
Operating relative humidity	15% to 95% @ 104°F (40°C), noncondensing	15% to 95% @ 104°F (40°C), noncondensing
Nonoperating/Storage temperature	-40°F to 158°F (-40°C to 70°C)	-40°F to 158°F (-40°C to 70°C)
Nonoperating/Storage relative humidity	15% to 95% @ 149°F (65°C), noncondensing	15% to 90% @ 149°F (65°C), noncondensing
Altitude	Up to 15,000 ft. (4.6 km)	Up to 15,000 ft. (4.6 km)
Acoustic	Power: 55.8 dB, Pressure: 43.5 dB ISO 7779, ISO 9296	Power: 53.1 dB, Pressure: 42.6 dB ISO 7779, ISO 9296

HP 3500 and 3500 yl Switch Series (continued)

Specifications (continued)

	HP 3500-48 Switch (J9472A)	HP 3500-24 Switch (J9470A)
Electrical characteristics		
Description	The switch automatically adjusts to any voltage between 100–127 and 200–240 V with either 50 or 60 Hz.	The switch automatically adjusts to any voltage between 100–127 and 200–240 V with either 50 or 60 Hz.
Maximum heat dissipation	465 BTU/hr (490.58 kJ/hr)	268 BTU/hr (282.8 kJ/hr)
Voltage	100-127/200-240 VAC	100-127/200-240 VAC
Current	1.6/0.8 A	1.1/0.6 A
Idle power	96 W	68.2 W
Maximum power rating	136.2 W	78.7 W
Frequency	50/60 Hz	50/60 Hz
Notes	Idle power is the actual power consumption of the device with no ports connected. Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated.	Idle power is the actual power consumption of the device with no ports connected. Maximum power rating and maximum heat dissipation are the worst-case theoretical maximum numbers provided for planning the infrastructure with fully loaded PoE (if equipped), 100% traffic, all ports plugged in, and all modules populated.
Safety	EN 60950/IEC 60950; CAN/CSA 22.2 No. 60950; UL 60950; IEC 60950	CSA 22.2 No. 60950; UL 60950; IEC 60950; EN 60950
Emissions	FCC Class A; VCCI Class A; EN 55022/CISPR 22 Class A	FCC Class A; VCCI Class A; EN 55022/CISPR 22 Class A
Immunity		
EN	EN 55024, CISPR 24	EN 55024, CISPR 24
ESD	IEC 61000-4-2; 4 kV CD, 8 kV AD	IEC 61000-4-2; 4 kV CD, 8 kV AD
Radiated	IEC 61000-4-3; 3 V/m	IEC 61000-4-3; 3 V/m
EFT/Burst	IEC 61000-4-4; 1.0 kV (power line), 0.5 kV (signal line)	IEC 61000-4-4; 1.0 kV (power line), 0.5 kV (signal line)
Surge	IEC 61000-4-5; 1 kV/2 kV AC	IEC 61000-4-5; 1 kV/2 kV AC
Conducted	IEC 61000-4-6; 3 V	IEC 61000-4-6; 3 V
Power frequency magnetic field	IEC 61000-4-8; 1 A/m, 50 or 60 Hz	IEC 61000-4-8; 1 A/m, 50 or 60 Hz
Voltage dips and interruptions	IEC 61000-4-11; >95% reduction, 0.5 period; 30% reduction, 25 periods	IEC 61000-4-11; >95% reduction, 0.5 period; 30% reduction, 25 periods
Harmonics	EN 61000-3-2, IEC 61000-3-2	EN 61000-3-2, IEC 61000-3-2
Flicker	EN 61000-3-3, IEC 61000-3-3	EN 61000-3-3, IEC 61000-3-3
Management	IMC—Intelligent Management Center; command-line interface; Web browser; configuration menu; out-of-band management (serial RS-232C)	IMC—Intelligent Management Center; command-line interface; Web browser; configuration menu; out-of-band management (serial RS-232C)
Notes	J8177B Gigabit 1000BASE-T mini-GBIC is not supported on the 3500 switch series. Supported 1G SFP transceivers are revision "B" or later (product number ends with the letter "B" or later, for example, J9142B, J8177C).	J8177B Gigabit 1000BASE-T mini-GBIC is not supported on the 3500 switch series. Supported 1G SFP transceivers are revision "B" or later (product number ends with the letter "B" or later, for example, J9142B, J8177C).
Services	Refer to the HP website at hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.	Refer to the HP website at hp.com/networking/services for details on the service-level descriptions and product numbers. For details about services and response times in your area, please contact your local HP sales office.

HP 3500 and 3500 yl Switch Series (continued)

Specifications (continued)

Standards and protocols
(applies to all products in series)

HP 3500-48 Switch (J9472A)

HP 3500-24 Switch (J9470A)

BGP

RFC 1997 BGP Communities Attribute
RFC 2918 Route Refresh Capability
RFC 4271 A Border Gateway Protocol 4 (BGP-4)
RFC 4456 BGP Route Reflection: An Alternative to Full
Mesh Internal BGP (IBGP)
RFC 5492 Capabilities Advertisement with BGP-4

Device management

RFC 1591 DNS (client)
HTML and telnet management

General protocols

IEEE 802.1ad Q-in-Q
IEEE 802.1AX-2008 Link Aggregation
IEEE 802.1D MAC Bridges
IEEE 802.1p Priority
IEEE 802.1Q VLANs
IEEE 802.1s Multiple Spanning Trees
IEEE 802.1v VLAN classification by Protocol and Port
IEEE 802.1w Rapid Reconfiguration of Spanning Tree
IEEE 802.3ad Link Aggregation Control Protocol (LACP)
IEEE 802.3af Power over Ethernet
IEEE 802.3x Flow Control
RFC 768 UDP
RFC 783 TFTP Protocol (revision 2)
RFC 792 ICMP
RFC 793 TCP
RFC 826 ARP
RFC 854 TELNET
RFC 868 Time Protocol
RFC 951 BOOTP
RFC 1058 RIPv1
RFC 1350 TFTP Protocol (revision 2)
RFC 1519 CIDR
RFC 1542 BOOTP Extensions
RFC 1918 Address Allocation for Private Internet
RFC 2030 Simple Network Time Protocol (SNTP) v4
RFC 2131 DHCP
RFC 2453 RIPv2
RFC 2548 (MS-RAS-Vendor only)
RFC 3046 DHCP Relay Agent Information Option
RFC 3576 Ext to RADIUS (CoA only)
RFC 3768 VRRP
RFC 4675 RADIUS VLAN & Priority
RFC 5798 VRRP (exclude Accept Mode and sub-sec timer)

IP multicast

RFC 3973 PIM Dense Mode
RFC 3376 IGMPv3 (host joins only)

IPv6

RFC 1981 IPv6 Path MTU Discovery
RFC 2375 IPv6 Multicast Address Assignments
RFC 2460 IPv6 Specification
RFC 2464 Transmission of IPv6 over Ethernet Networks
RFC 2710 Multicast Listener Discovery (MLD) for IPv6
RFC 2925 Definitions of Managed Objects for Remote Ping, Traceroute, and Lookup Operations (Ping only)
RFC 3019 MLDv1 MIB
RFC 3315 DHCPv6 (client and relay)
RFC 3484 Default Address Selection for IPv6
RFC 3587 IPv6 Global Unicast Address Format
RFC 3596 DNS Extension for IPv6
RFC 3810 MLDv2 for IPv6
RFC 4022 MIB for TCP
RFC 4087 IP Tunnel MIB RFC 4443 ICMPv6
RFC 4113 MIB for UDP RFC 4541 IGMP & MLD Snooping Switch
RFC 4213 Basic Transition Mechanisms for IPv6 Hosts and Routers
RFC 4251 SSHv6 Architecture
RFC 4252 SSHv6 Authentication
RFC 4253 SSHv6 Transport Layer
RFC 4254 SSHv6 Connection
RFC 4291 IP Version 6 Addressing Architecture
RFC 4293 MIB for IP
RFC 4294 IPv6 Node Requirements
RFC 4419 Key Exchange for SSH
RFC 4443 ICMPv6
RFC 4861 IPv6 Neighbor Discovery
RFC 4862 IPv6 Stateless Address Auto-configuration
RFC 5095 Deprecation of Type 0 Routing Headers in IPv6
RFC 5340 OSPFv3 for IPv6
RFC 5453 Reserved IPv6 Interface Identifiers
RFC 5519 Multicast Group Membership Discovery MIB (MLDv2 only)

MIBs

IEEE 802.1ap (MSTP and STP MIBs only)
RFC 1155 Structure & ID of Mgmt Info for TCP/IP Internets
RFC 1213 MIB II
RFC 1493 Bridge MIB
RFC 1724 RIPv2 MIB
RFC 1850 OSPFv2 MIB
RFC 2021 RMONv2 MIB
RFC 2096 IP Forwarding Table MIB
RFC 2578 Structure of Management Information Version 2 (SMIv2)
RFC 2613 SMON MIB
RFC 2618 RADIUS Client MIB
RFC 2620 RADIUS Accounting MIB
RFC 2665 Ethernet-Like-MIB
RFC 2668 802.3 MAU MIB
RFC 2674 802.1p and IEEE 802.1Q Bridge MIB
RFC 2737 Entity MIB (Version 2)
RFC 2787 VRRP MIB
RFC 2863 The Interfaces Group MIB
RFC 2925 Ping MIB
RFC 2932 IP (Multicast Routing MIB)
RFC 4836 Managed Objects for 802.3 Medium Attachment Units (MAU)

Network management

IEEE 802.1AB Link Layer Discovery Protocol (LLDP)
RFC 2819 Four groups of RMON: 1 (statistics), 2 (history), 3 (alarm), and 9 (events)
RFC 3176 sFlow
RFC 5424 Syslog Protocol
ANSI/TIA-1057 LLDP Media Endpoint Discovery (LLDP-MED)
SNMPv1/v2c/v3
XRMON

OSPF

RFC 2328 OSPFv2
RFC 3101 OSPF NSSA

QoS/CoS

RFC 2474 DiffServ Precedence, including 8 queues/port
RFC 2597 DiffServ Assured Forwarding (AF)

Security

IEEE 802.1X Port Based Network Access Control
RFC 1492 TACACS+
RFC 2865 RADIUS (client only)
RFC 2866 RADIUS Accounting
RFC 3579 RADIUS Support For Extensible Authentication Protocol (EAP)
Secure Sockets Layer (SSL)
SSHv2 Secure Shell

HP 3500 and 3500 yl Switch Series accessories

Modules

HP 10GbE 2-port X2/2-port CX4 yl Module (J8694A)

HP 10GbE 2-port SFP+/2-port CX4 yl Module (J9312A)

Transceivers

HP X111 100M SFP LC FX Transceiver (J9054C)

HP X112 100M SFP LC BX-D Transceiver (J9099B)

HP X112 100M SFP LC BX-U Transceiver (J9100B)

HP X121 1G SFP LC LH Transceiver (J4860C)

HP X121 1G SFP LC LX Transceiver (J4859C)

HP X121 1G SFP LC SX Transceiver (J4858C)

HP X122 1G SFP LC BX-D Transceiver (J9142B)

HP X122 1G SFP LC BX-U Transceiver (J9143B)

HP X131 10G X2 CX4 Transceiver (J8440C)

HP X131 10G X2 SC ER Transceiver (J8438A)

HP X131 10G X2 SC LR Transceiver (J8437A)

HP X131 10G X2 SC LRM Transceiver (J9144A)

HP X131 10G X2 SC SR Transceiver (J8436A)

HP X132 10G SFP+ LC ER Transceiver (J9153A)

HP X132 10G SFP+ LC LR Transceiver (J9151A)

HP X132 10G SFP+ LC LRM Transceiver (J9152A)

HP X132 10G SFP+ LC SR Transceiver (J9150A)

Cables

HP X242 10G SFP+ to SFP+ 1m Direct Attach Copper Cable (J9281B)

HP X242 10G SFP+ to SFP+ 3m Direct Attach Copper Cable (J9283B)

HP X242 10G SFP+ to SFP+ 7m Direct Attach Copper Cable (J9285B)

HP X244 10G XFP to SFP+ 1m Direct Attach Copper Cable (J9300A)

HP X244 10G XFP to SFP+ 3m Direct Attach Copper Cable (J9301A)

HP X244 10G XFP to SFP+ 5m Direct Attach Copper Cable (J9302A)

HP 0.5m Multi-mode OM3 LC/LC Optical Cable (AJ833A)

HP 1m Multi-mode OM3 LC/LC Optical Cable (AJ834A)

HP 2m Multi-mode OM3 LC/LC Optical Cable (AJ835A)

HP 5m Multi-mode OM3 LC/LC Optical Cable (AJ836A)

HP 15m Multi-mode OM3 LC/LC Optical Cable (AJ837A)

HP 30m Multi-mode OM3 LC/LC Optical Cable (AJ838A)

HP 50m Multi-mode OM3 LC/LC Optical Cable (AJ839A)

HP Premier Flex LC/LC Multi-mode OM4 2 fiber 1m Cable (QK732A)

HP Premier Flex LC/LC Multi-mode OM4 2 fiber 2m Cable (QK733A)

HP Premier Flex LC/LC Multi-mode OM4 2 fiber 5m Cable (QK734A)

HP Premier Flex LC/LC Multi-mode OM4 2 fiber 15m Cable (QK735A)

HP Premier Flex LC/LC Multi-mode OM4 2 fiber 30m Cable (QK736A)

HP Premier Flex LC/LC Multi-mode OM4 2 fiber 50m Cable (QK737A)

HP X242 10G SFP+ to SFP+ 10m Direct Attach Copper Cable (J9286B)

HP X242 10G SFP+ to SFP+ 15m Direct Attach Copper Cable (J9287B)

EPS/RPS

HP 620 Redundant/External Power Supply (J8696A)

HP 630 Redundant and/or External Power Supply (J9443A)

Mounting Kit

HP X410 1U Universal 4-post Rack Mounting Kit (J9583A)

License

HP 3500 yl Premium License (J8993A)

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Products within this series have achieved sufficient scores in each of the rated criteria to achieve the Miercom Certified Green distinction Award. See the Specifications section of this series for more information.

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